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GLORIA sidescan and seismic data collected by the DESV STARELLA along the Continental Slope and upper Continental Rise of the eastern United States in 1979

By

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A cruise on the DESV STARELLA was conducted between October 23, 1979, and November 8, 1979, by the U.S. Geological Survey (USGS) in cooperation with the United Kingdom's Institute of Oceanographic Sciences (IOS). The purpose of the study was to gain an overview of the morphology of large areas of the Continental Slope and upper Continental Rise off the eastern United States. Sidescan-sonar and single-channel seismic-reflection data were collected along the tracklines shown in figure 1. The ship's position was monitored using LORAN-C and satellite navigation techniques.

The sidescan data were collected using the IOS-developed Geologic Long-Range Inclined Asdic, Mark II (GLORIA II) system. GLORIA was operated at either a 20-second or 40-second sweep, giving maximum slant-range distances of 15 or 30 kilometers, respectively, to each side of the towed fish. The sidescan data were collected on graphic recorders and analog tapes. The tapes were played onto photographic paper in a facsimile machine; then these prints were photographically stretched to produce approximately isometric images. The images were not corrected for slant-range distortion. Mosaics at a scale of 1:250,000 (Mercator projection) were made from the photographic images.

The seismic data consist of 40-in^3 airgun and 10-kHz echo-sounder profiles. The airgun data were recorded on EPC recorders at both 8- and 4-second sweep rates. The 10-kHz echo-sounder data were recorded on a wet-paper recorder at a 2-second sweep rate.

Approximately 4,820 km of seismic and sonar data were collected from four areas of interest and along the lines connecting those areas. Area 1 (fig. 1) includes the Continental Slope and upper Rise seaward of Georges Bank, between Northeast Channel and Alvin Canyon. Numerous lines were run here, resulting in approximately 2,500 km of seismic data and complete and overlapping GLORIA coverage of the area. A similar survey, consisting of approximately 1,200 km of trackline, was run in area 2 (fig. 1), which includes the Continental Slope and upper Rise seaward of the middle Atlantic states between Hudson Canyon and Baltimore Canyon. A single line, 250 km long, was run through area 3 (fig. 1) along the base of the Continental Slope from Cape Hatteras to latitude 33°N. off North and South Carolina. Two parallel lines, totaling 870 km, were run through area 4 along the Blake Escarpment, from the Blake Spur south to latitude 27°40'N. One line was run along the top of the escarpment and the other was run along the base of the escarpment.

All the data can be studied at the U.S. Geological Survey offices in Woods Hole, MA 02543. Microfilm copies of the sidescan-monitor record as well as the airgun and 10-kHz profiles can be purchased only from the National Geophysical Data Center, NOAA, Code E64, 325 Broadway, Boulder, CO 80303 (303/497-6338). Photographic copies of the GLORIA mosaics can also be obtained only from this address.

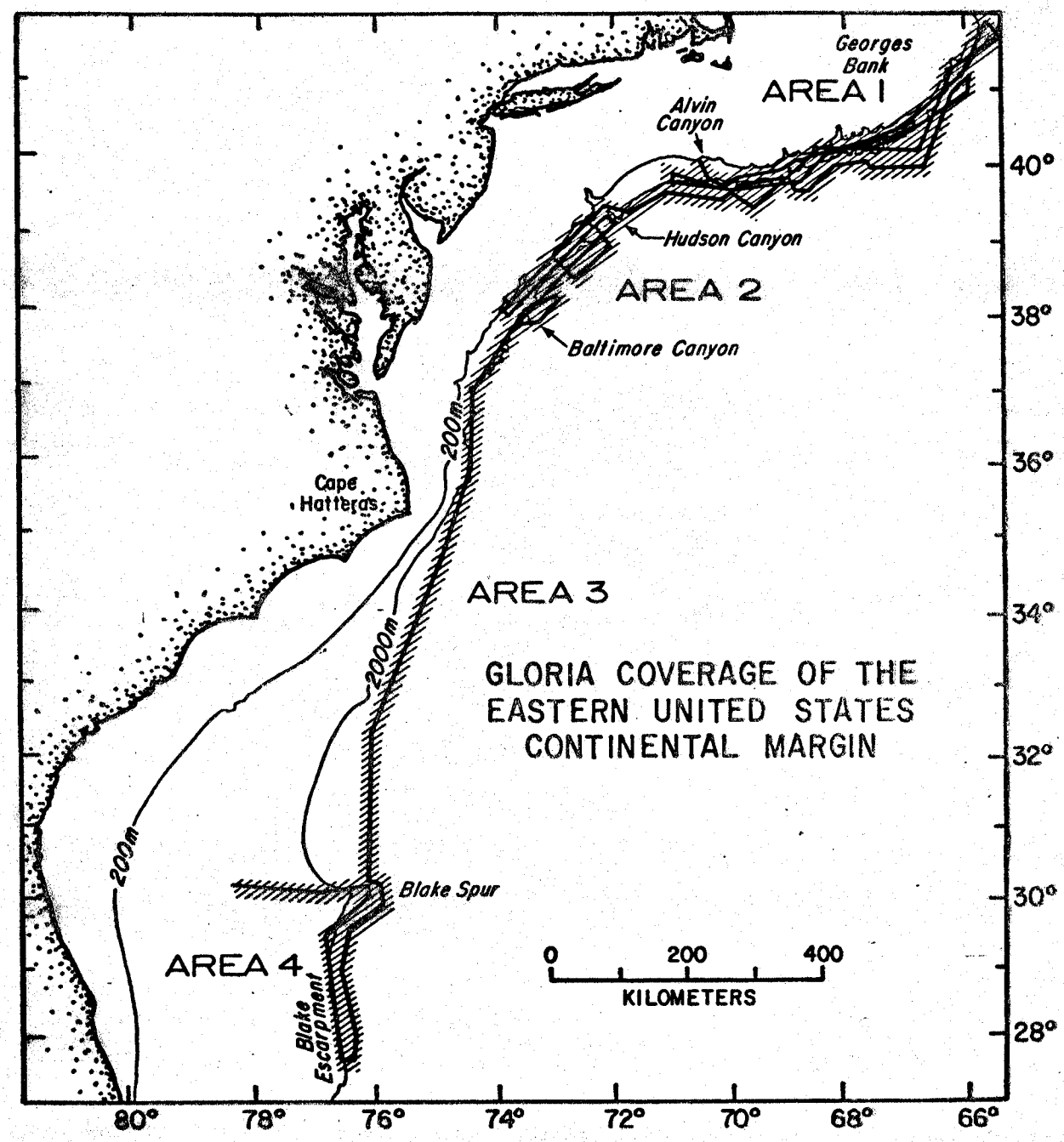

Figure 1. Map showing where data were collected by the DESV STARELLA from October 23, 1979 to November 8, 1979. Heavy line denotes ship's trackline, along which 10-kHz echo-sounder, single-channel seismic-reflection, and GLORIA sidescan data were collected. Shaded area indicates the extent of the GLORIA coverage.